

State of All Hazards Preparedness for Children

Partnerships & Models for Merging
Emergency Department & Disaster
Preparedness Efforts Nationwide

Wednesday, March 24, 2010

1:00-2:30pm EDT

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Steve Krug, MD, FAAP

Summary of State of Emergency and All-Hazard Preparedness for Children





State of Emergency and All-Hazards Disaster Preparedness for Children

Steven Krug, MD

Chair, AAP Disaster Preparedness Advisory Council

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Head, Division of Emergency Medicine, Children's Memorial Hospital

March 24, 2010



Improving All-Hazard Disaster Readiness for Children

- 1997 - FEMA survey of state disaster plans
 - Not one state plan had pediatric considerations
- Pandemic & All Hazards Preparedness Act (2006)
 - All state plans must now contain considerations for “at risk populations”, including children
 - ✓ The content, scope and efficacy of these pediatric elements vary greatly
 - Baseline deficiencies in pediatric readiness
 - ✓ Training/experience of disaster care providers
 - ✓ Medical countermeasures and equipment
 - ✓ Shelters, reunification, mental health
 - ✓ Disaster drills may not include child victims



A 'Blueprint' for Disaster Readiness



All-hazard
mass casualty
event readiness

Day-to-day
emergency
readiness

“The Elevated Hurricane Zone Housing Solution”

PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Guidelines for Care of Children in the ED

Gausche-Hill M, Krug S, and the American Academy of Pediatrics, American College of Emergency Physicians, Emergency Nurses Association

Pediatrics 2009; 124(4):1233-43.

- Recommendations regarding personnel, training, equipment, supplies, medications, support services, quality and process improvement, policies, protocols, and other resources necessary for optimal pediatric emergency care
 - Updated version of 2001 AAP/ACEP joint policy statement
 - Applicable standard for EDs with 24/7 physician staffing
 - Endorsed by 22 organizations, including AMA, NACHRI, JC
- The presence of MD & RN pediatric coordinators may be the most important factor associated with readiness
- Recommendations for patient safety & disaster readiness

Available at: www.pediatrics.org/cgi/doi/10.1542/peds.2009-1807

Pediatric Physician and Nurse Coordinators

- Pediatric physician coordinator is a specialist in pediatrics, emergency medicine, or family medicine, appointed by the ED medical director, who through training, clinical experience, or focused continuing medical education demonstrates competence in the care of children in emergency settings including resuscitation
- Pediatric Nurse coordinator is a registered nurse (RN), appointed by the ED nursing director, who possesses special interest, knowledge, and skill in the emergency medical care of children



Guidelines for All-Hazard Disaster Preparedness

- Availability of medications, vaccines, equipment and appropriately trained providers for children in disasters
- Pediatric surge capacity for both injured and non-injured children
- Decontamination, isolation and quarantine of families and children of all ages
- Plan that minimizes parent-child separation and includes system tracking of pediatric patients allowing for the timely reunification of separated children and their families

Source: Guidelines for Care of Children in the ED, Pediatrics 2009.



Guidelines for All-Hazard Disaster Preparedness

- Access to specific medical and mental health therapies, as well as social services, for children and families
- Disaster drills, which should include a pediatric mass casualty incident at least every two years
- Care of children with special health care needs
- A plan that includes evacuation of pediatric units and pediatric specialty care units

Source: Guidelines for Care of Children in the ED, Pediatrics 2009.



Emergency Preparedness 101

One Plan for All Hazards & All Victims ?

- Can we manage acutely ill or injured children like they are small adults ?
 - No, neither singly nor in multiples
- Why not....
 - Unique vulnerabilities
 - Assessment/triage
 - Specialized care resource needs
 - Development & mental health
 - Family issues
- Does your disaster plan address the unique needs of children & families or pediatric surge capacity?



Michael R. Anderson, MD, FAAP

Making Children a National Priority: A Report from the National Commission on Children and Disasters





The National Commission on Children and Disasters

Michael R Anderson MD FAAP

**Associate Professor of Pediatrics, Division of Critical Care Medicine
Case Western Reserve University School of Medicine, Rainbow Babies &
Children's Hospital**

**Vice Chair, National Commission on Children and Disasters
Washington, DC**

**Vice President and Associate Chief Medical Officer, University Hospitals,
Cleveland, OH**



Our Nation Has Changed.....

Children at ground 0

Oklahoma City Day Care





Hurricane Katrina



AP PHOTO/RON HAVIV/WI



novel H1N1





National Commission on Children and Disasters



- **Children make up 25% of the population, but often overlooked in disaster planning and management**
- **Presidential disaster declarations more than doubled since 1980's**
- **Only seven states have laws or regulations requiring schools and licensed child care providers to have basic written emergency plans (Save the Children, 2009)**



Children make up 25% of the general population, but...

- Training, exercising, medicines and equipment generally intended for adult populations
- Children lumped into broad categories: “at-risk” “vulnerable” or “special needs”
- Pets are a greater priority in disaster planning
- Recovery focused on rebuilding infrastructure rather than the needs of children and families



Commission Background

- **Independent:** Authorized by Congress under the Consolidated Appropriations Act of 2008 (P.L. 110-161)
- **Bi-partisan:** 10 members appointed by President Bush, Senate and House leaders
- **Diverse:** Expertise drawn from multiple disciplines: pediatrics, state and local emergency management, non-governmental organizations, and state elected office



Commission Purpose

- **Conduct a comprehensive study to examine the needs of children in relation to the preparation for, response to and recovery from all-hazards, including major disasters and emergencies.**
- **Report specific findings, conclusions and recommendations to the President and Congress.**



Commission Structure

- **Commission Chairperson**, Mark Shriver, Save the Children
- **Evacuation, Transportation, & Housing Subcommittee**
Chairperson, Bruce Lockwood, Bristol-Burlington (CT) Health District
- **Pediatric Medical Care Subcommittee**
Chairperson, Dr. Michael Anderson, Rainbow Babies & Children's (OH)
- **Education, Child Welfare & Juvenile Justice Subcommittee**
Chairperson, Hon. Sheila Leslie, Nevada General Assembly
- **Human Services Recovery Subcommittee**
Chairperson, Dr. Irwin Redlener, Columbia University



Important Milestones

- October 14, 2008: First Public Meeting
 - Public meetings held on a quarterly basis
- October 14, 2009: Interim Report delivered to President Obama and Congress
- February 1, 2010: Long-Term Disaster Recovery Workshop
- October 2010: Report due to the President and Congress



Shelter

Case
Management

Acute
Care

Prepare
Respond
Recover
Mitigate

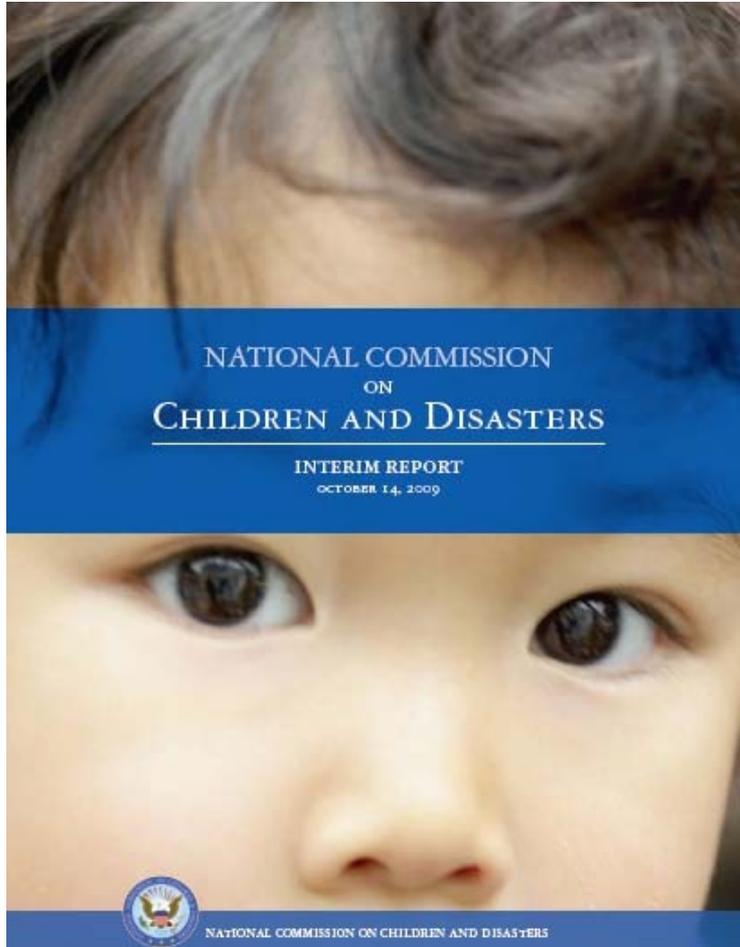
Justice
and
Safety

Long Term
Housing

Mental
Health

Education





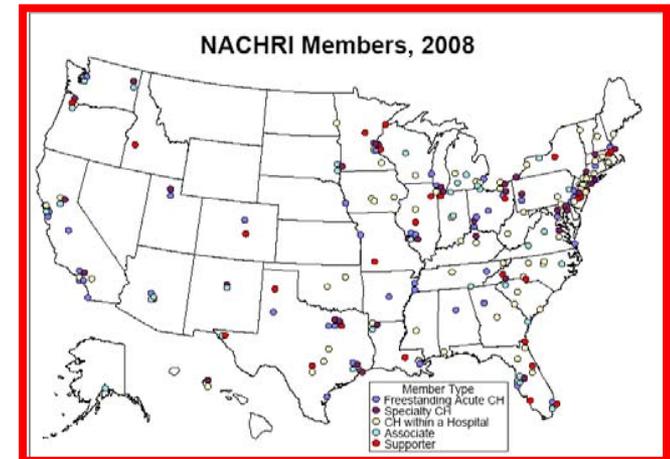
Interim Report: Highlights

<http://www.childrenanddisasters.acf.hhs.gov>

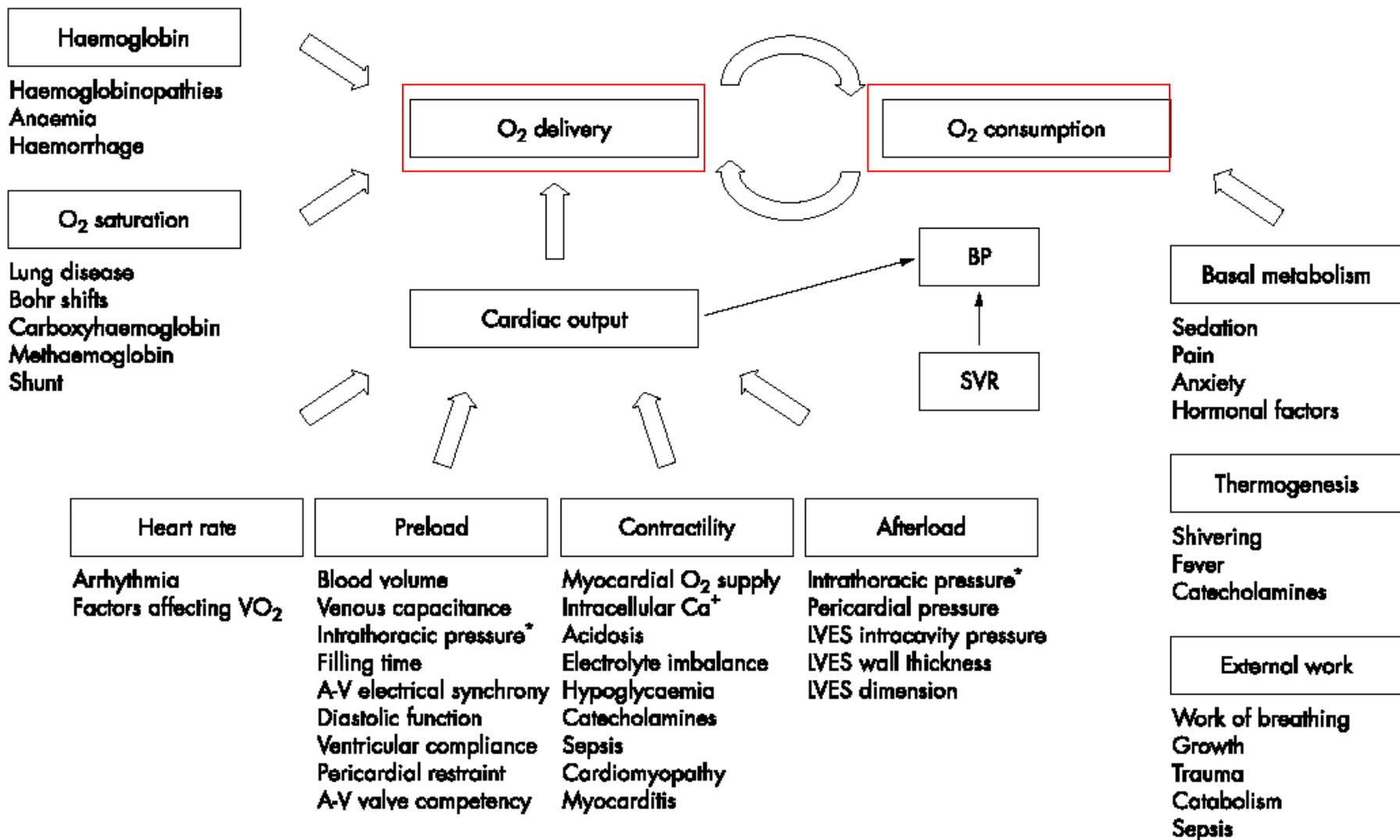


Recommendation: Medical Care

- Build upon *existing systems/strengths* in our nation's acute care portfolio
 - Trauma centers/systems
 - Children's hospitals/systems
 - Academic medical centers
 - ❖ Pediatric surge capacity
 - Especially critical & sub-specialty care
 - ❖ Inter-hospital transport/evacuation
 - Interstate mutual aid relationships
 - ❖ *Specialized DMAT's*
 - ❖ Training resources
 - PALS, PEPP, ENPC, PDLS, etc.

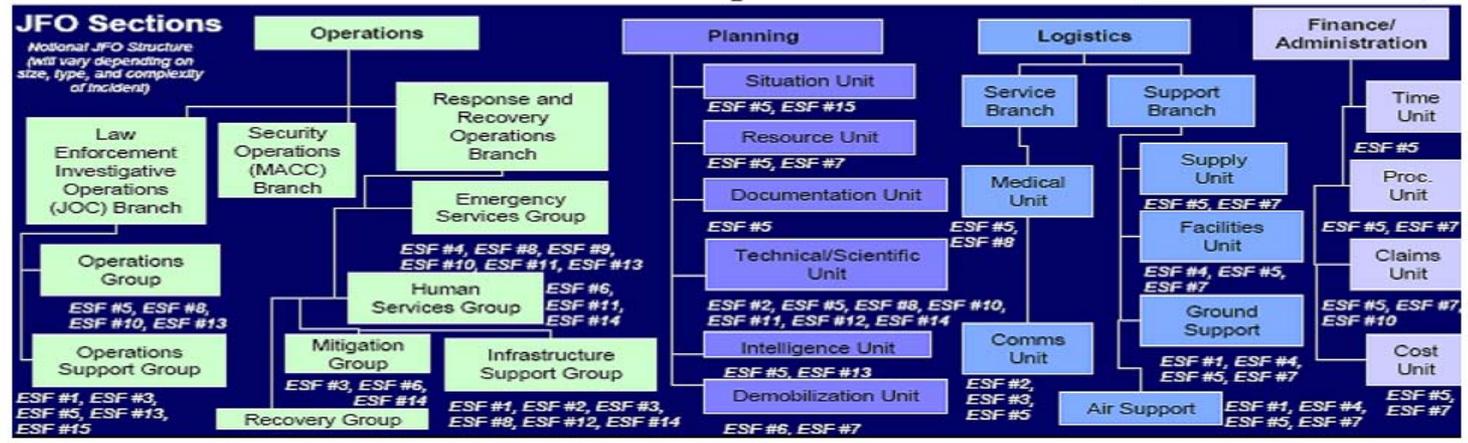
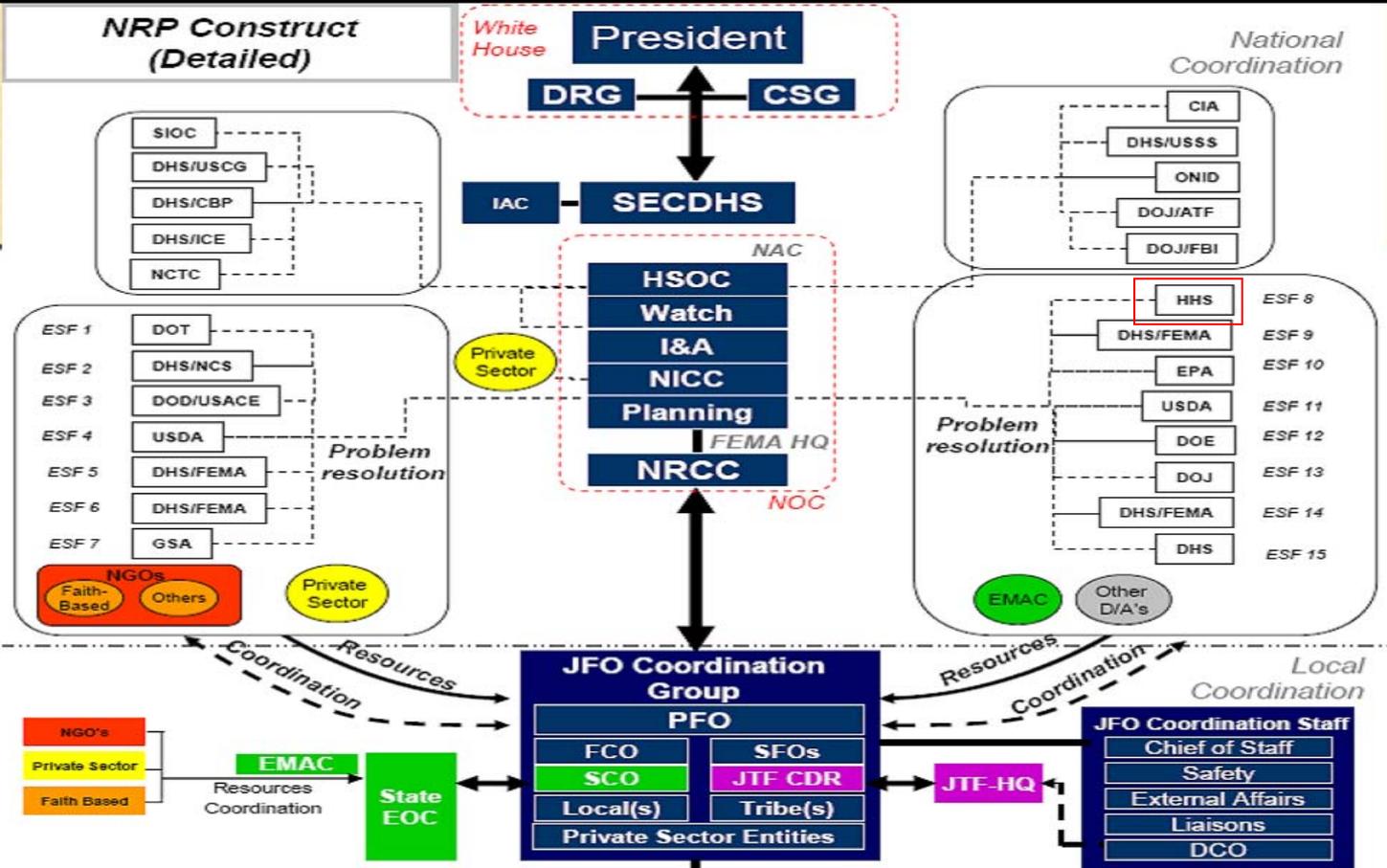




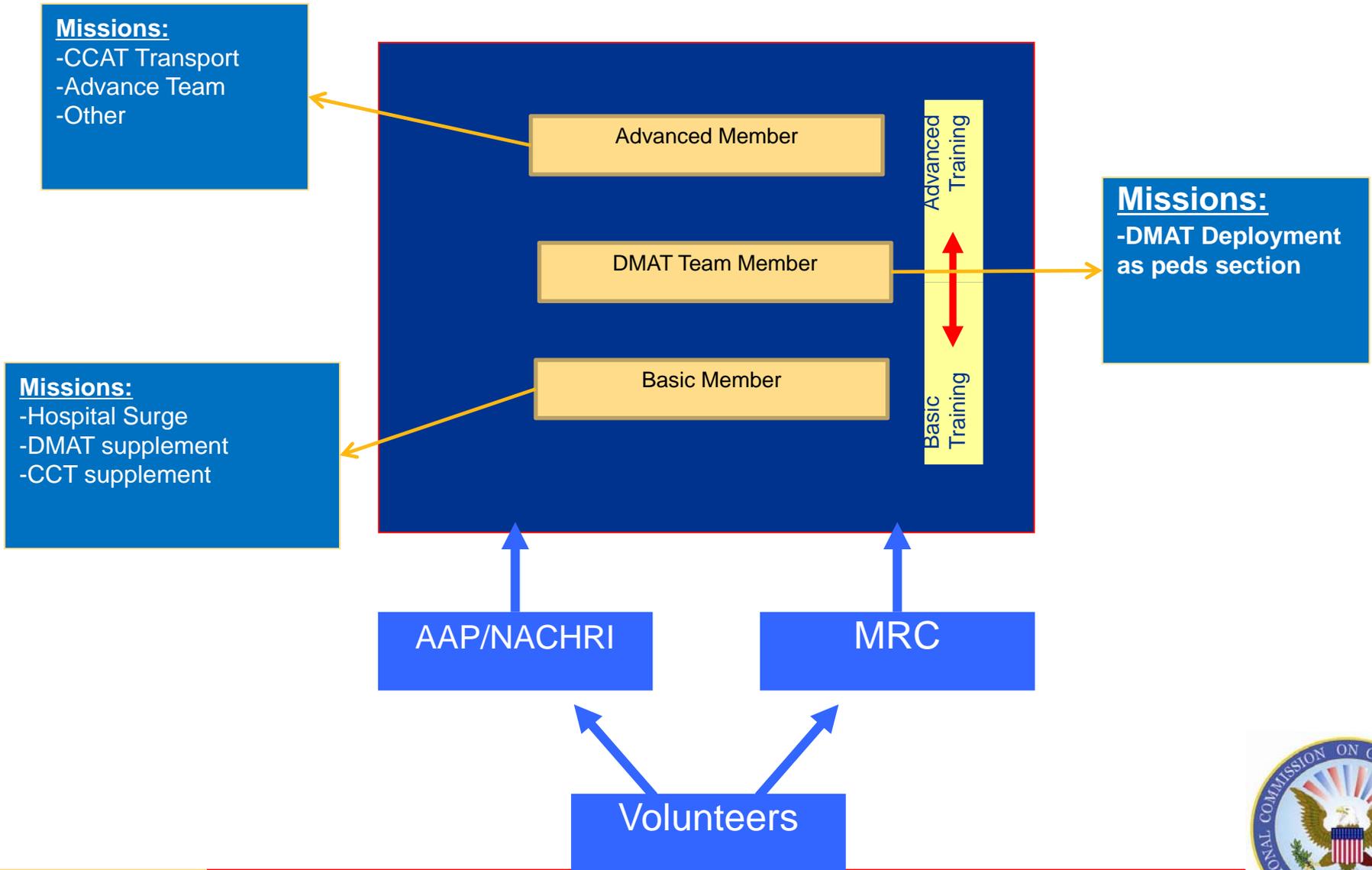




NRP Construct (Detailed)



National Pediatric Disaster Response Network Regional Framework for Membership/Missions





National Commission on Children and Disasters: Other Areas of Focus



Other Recommendations

- EMS Care
- Training
- Regionalization
- Medical Countermeasures



Other Recommendations

- Primary Care and Recovery
- Medical Countermeasures
- Surge Capacity



1. Disaster Management and Recovery

- Integrate the needs of children across all inter- and intra-governmental disaster planning activities and operations.
- Accelerate the development of a National Disaster Recovery Strategy.

2. Mental Health

- Integrate mental and behavioral health for children into all public health and medical preparedness and response activities.
- Enhance the research agenda for children's disaster mental and behavioral health.
- Enhance pediatric disaster mental and behavioral health training for professionals and paraprofessionals.



3. Child Physical Health and Trauma

- Ensure availability and access to pediatric medical countermeasures at the federal, state and local level.
- Expand the medical capabilities of all federally funded response teams through the comprehensive integration of pediatric-specific training, guidance, exercises, supplies and personnel.
- Ensure all health care professionals who may treat children during an emergency have adequate pediatric disaster clinical training.
- Fund a formal regionalized pediatric system of care for disasters.
- Ensure access to physical and mental health services for all children during recovery from disaster.



4. EMS and Pediatric Transport

- Improve the capability of EMS to transport pediatric patients and provide comprehensive pre-hospital pediatric care.

5. Disaster Case Management

- Establish a holistic federal disaster case management program.

6. Child Care

- Require disaster planning capabilities for child care providers.
- Improve capacity to provide child care services in the immediate aftermath of and recovery from a disaster.



7. Elementary and Secondary Education

- Establish a school disaster preparedness program and appropriate funds to the U.S. Department of Education for a dedicated and sustained funding stream to all state education agencies.
- Enhance the ability of school personnel to support children who are traumatized, grieving or otherwise recovering from a disaster

8. Child Welfare and Juvenile Justice

- Assist child welfare agencies in meeting current disaster planning requirements and require collaboration with key stakeholders.
- Conduct a national assessment of disaster planning and preparedness among state and local juvenile justice systems.



9. Sheltering Standards, Services and Supplies

- Provide a safe and secure mass care shelter environment for children, including access to essential services and supplies.

10. Housing

- Prioritize families with children for disaster housing assistance and expedited transition into permanent housing, especially families with children who have disabilities or other special health, mental health or educational needs.

11. Evacuation

- Develop a standardized, interoperable national evacuee tracking and family reunification system.

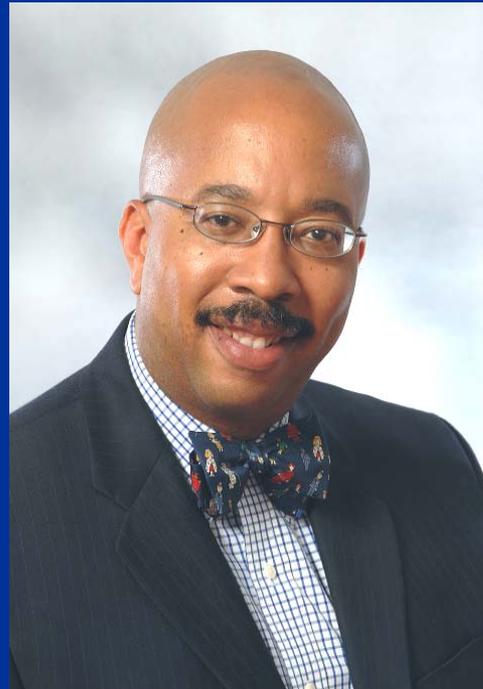


Thank You For Your Commitment to our Nation's Children !



**Jeffrey S. Upperman, MD,
FAAP, FACS**

***Resources & Tools for Pediatric
Disaster Planning***



Resources & Tools for Pediatric Disaster Planning

Upperman/CHLA-LAEMS

**Pediatric Disaster
Resource and Training Center**



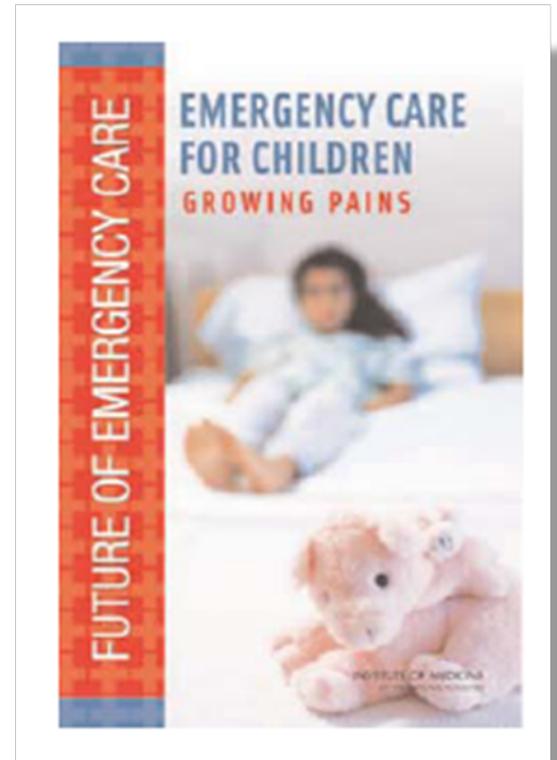
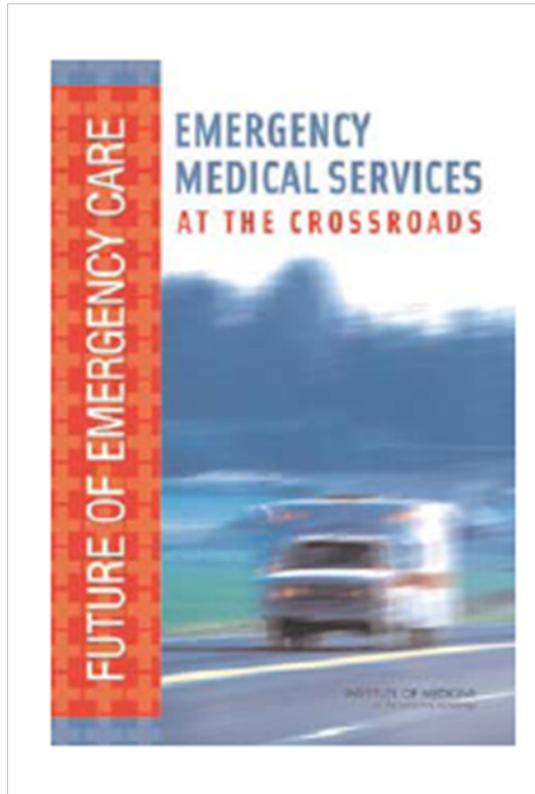
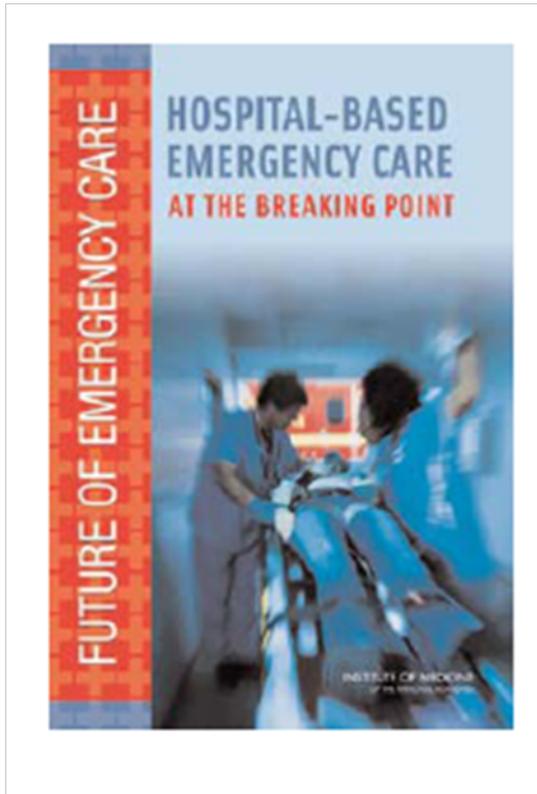
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International Leader in Pediatrics

Objectives

1. Describe the Disaster Life Cycle and rationale for informatics strategy
2. Identify key elements resource development: PEDSS model
3. Discuss novel approaches that can be incorporated into community and hospital-based pediatric disaster planning





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Upperman/CHLA-LAEMS *Institute of Medicine 2006*

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informatics

Health informatics is the science that underlies the academic investigation and practical application of computing and communications technology to healthcare, health education and biomedical research.

<http://www.healthsystem.virginia.edu/Internet/Copy%20of%20phs/informatics/HealthInfDef.cfm>

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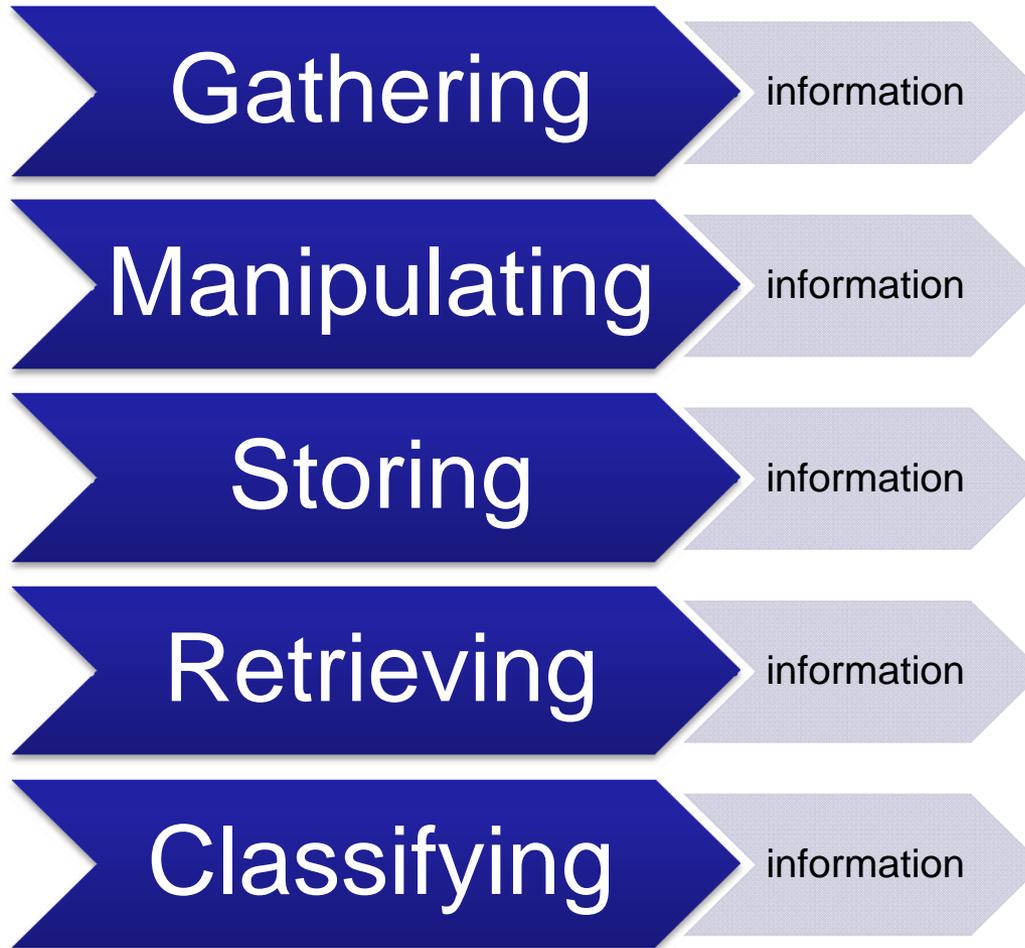
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informatics



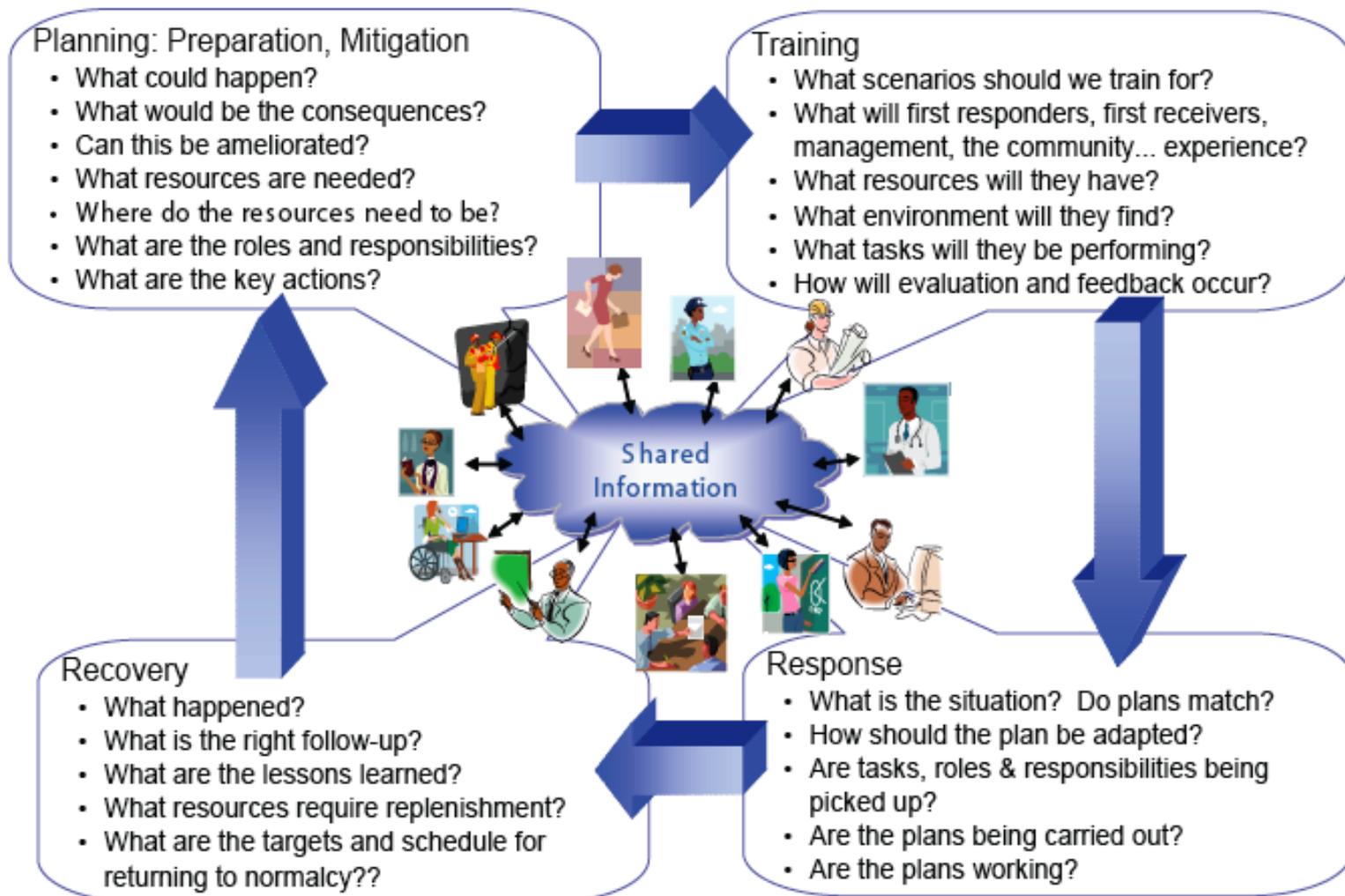
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wordnetweb.princeton.edu/perl/webwn

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Informatics and the Full Range of the Emergency Care System Lifecycle



Goal: Engineering advances that facilitate affordable solutions to critical problems in delivery of emergency care and services

Trauma Informatics Paradigm

Environmental Data

Injury Data

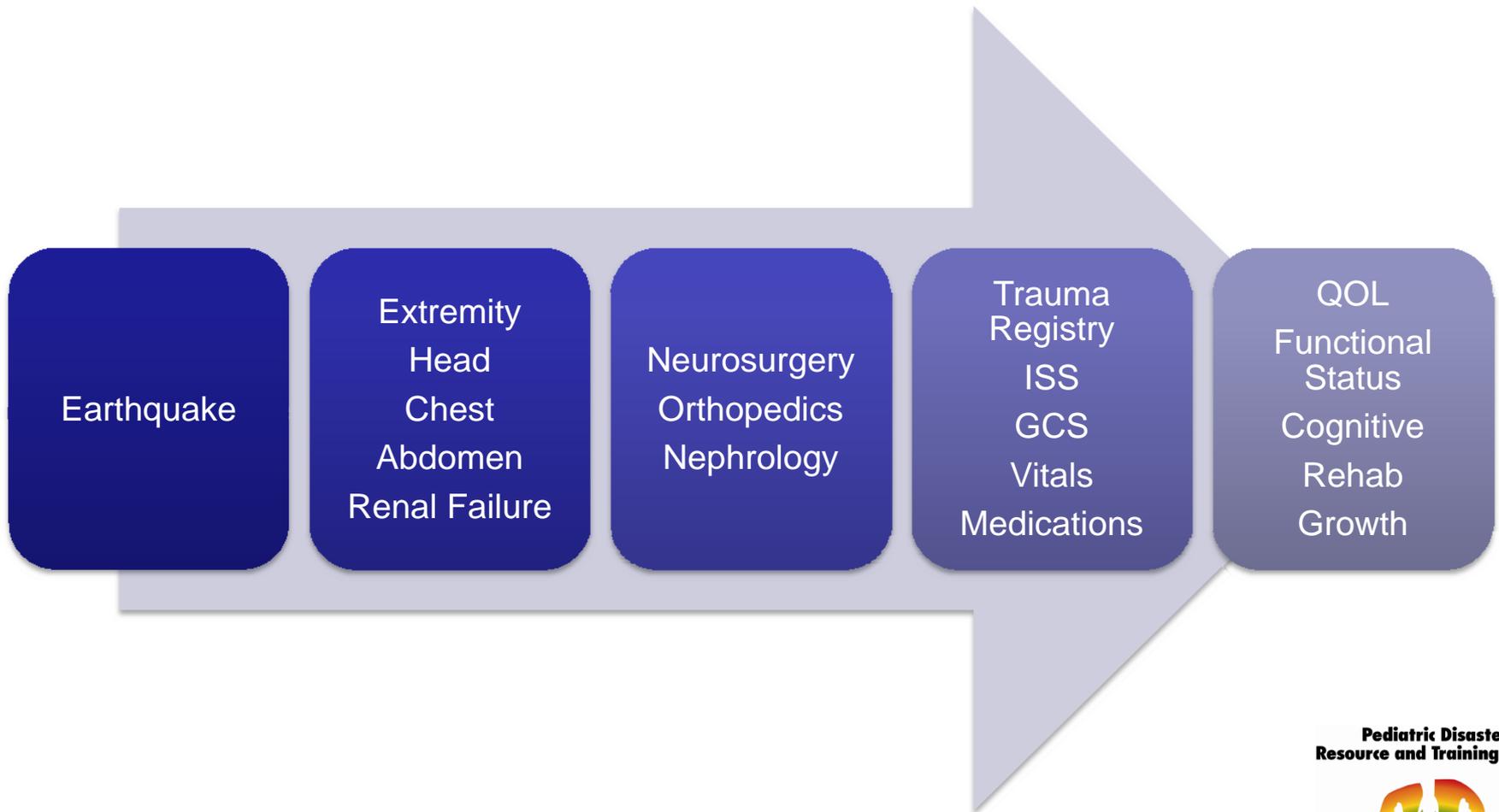
Response Data

Outcome Data

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Role of Trauma Data in Care



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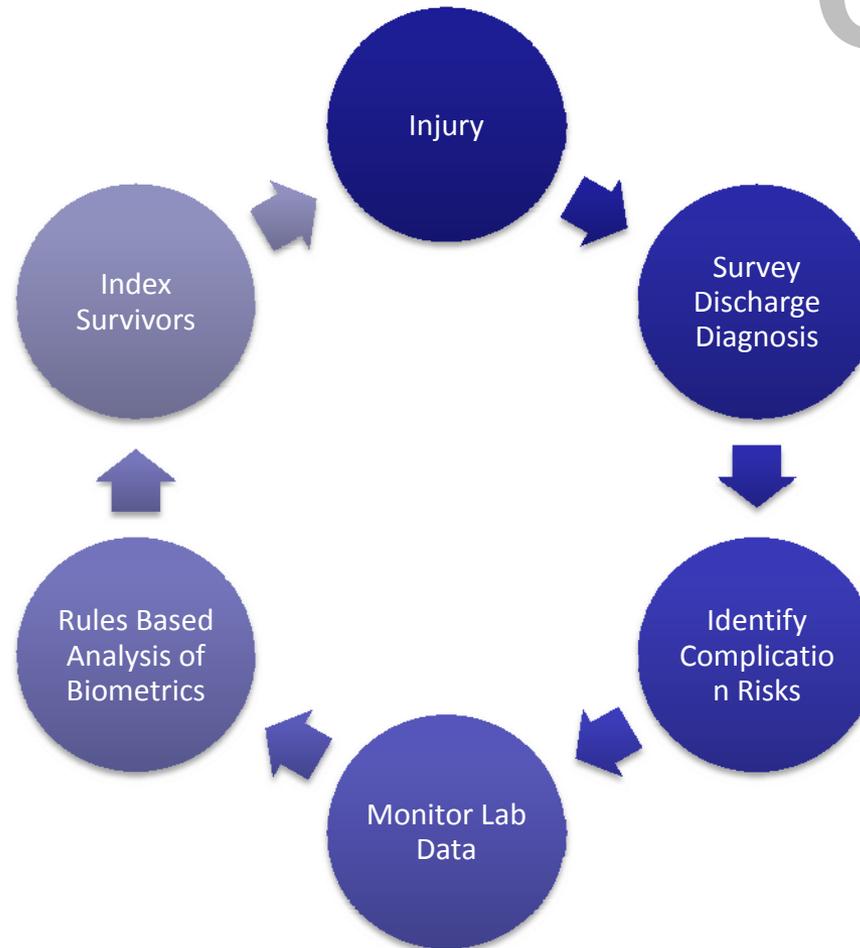
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Data Mining & Injury Control



Upperman/CHLA-LAEMS

Tepas, JOT Supp S108, 2009

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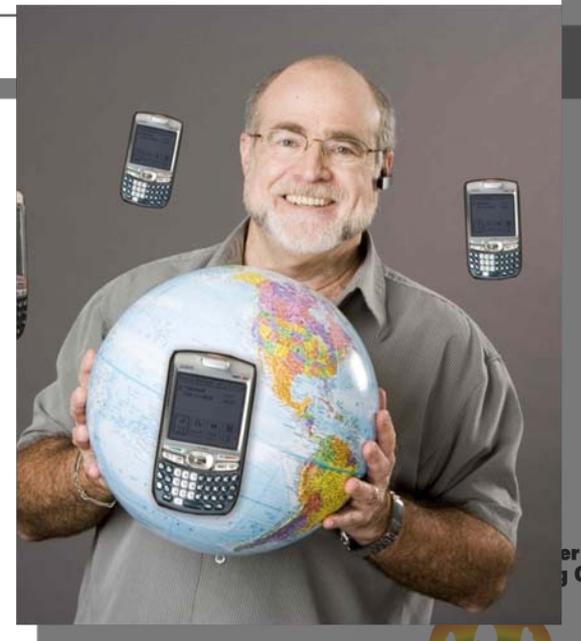
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ORIGINAL ARTICLE

Design and evaluation of a disaster preparedness logistics tool

Robert Neches, PhD; Tatyana Ryutov, PhD; Tatiana Kichkaylo, PhD; Rita V. Burke, PhD, MPH;
Ilene A. Claudius, MD; Jeffrey S. Upperman, MD, FAAP, FACS



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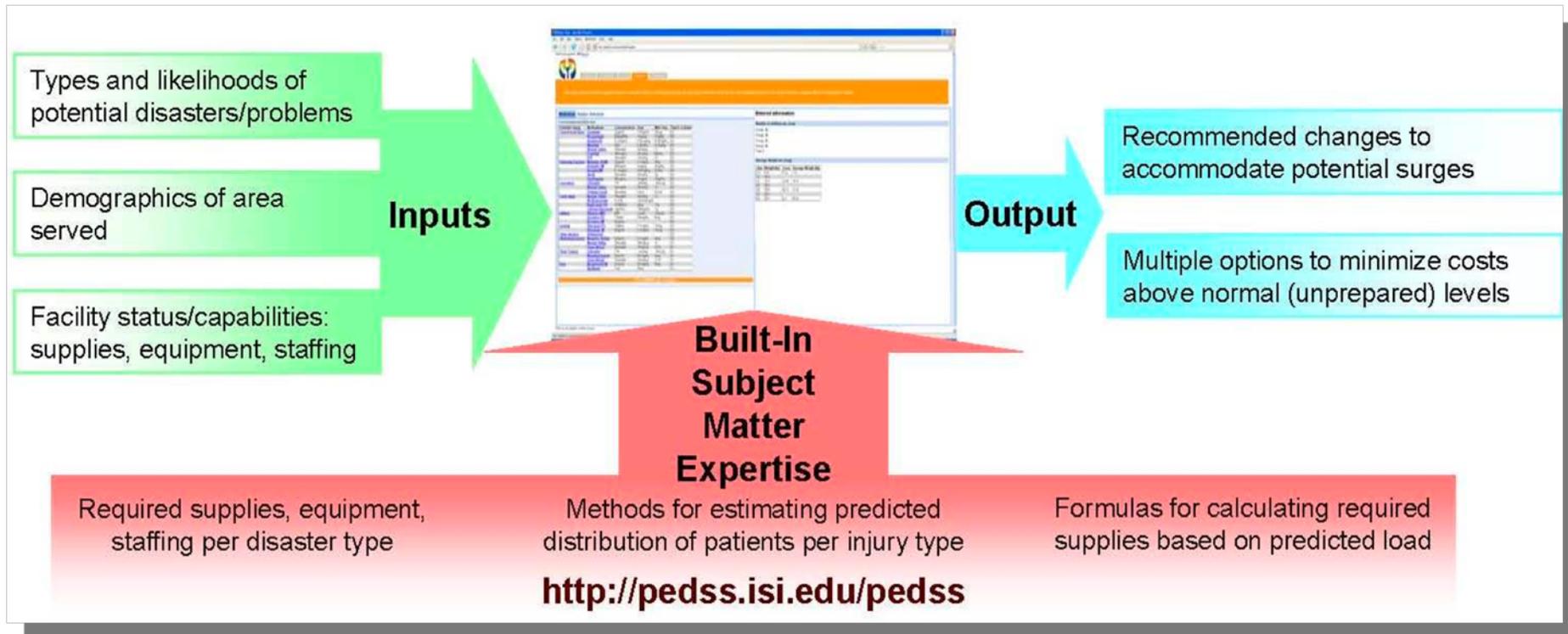
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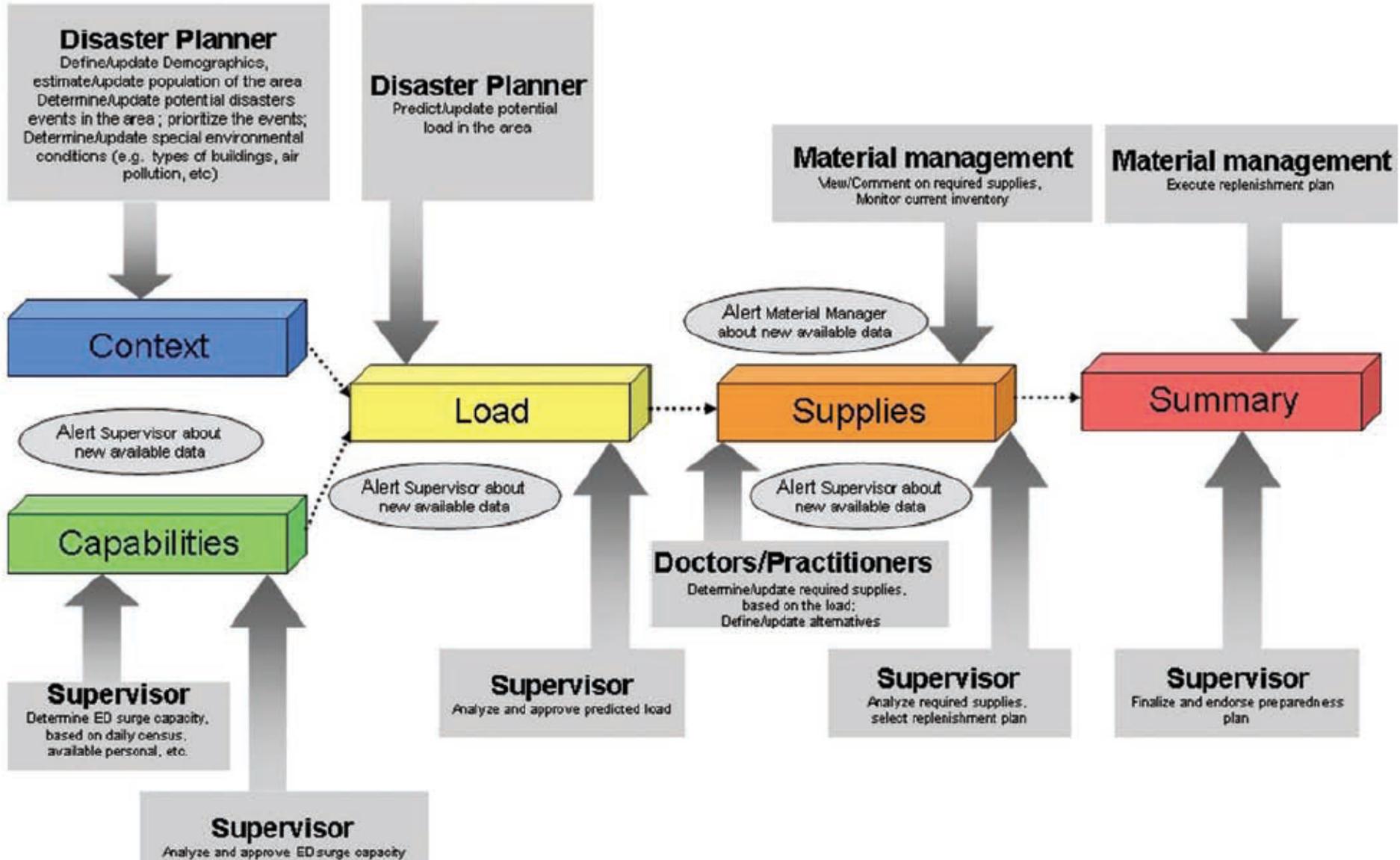
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PEDSS



PEDSS FUNCTIONS





Planning
for
a
surge

**How to
think in
terms of
“populations”
when
you are
in a
surge
situation**





The Power of Games



TIME 140 60

Mini Map

UNIT **TARGET** **Patient Triage Assessment** **Actions**

NURSE

 Nurses can triage patients and provide various types of care

PATIENT

 Patients must be triaged and given medical care based on their diagnosis

NAME: Sally Brown
AGE: 7 (approx.)
SYMPTOMS: Lumbar spine burst fracture. Bilateral heel contusions

Actions:
 Triage MINOR Triage DELAY Triage IMMED
 Triage UNSAL Triage O.R. Triage X-Ray

ter
ng Center

sAngeles

Robotics and Emergency Response

Paging Dr. RP-7 ... Paging Dr. RP-7 ...

By Susan Abram, Staff Writer
Posted: 03/11/2009 11:51:13 PM PDT

» [South Bay Family Talk](#)

The RP-7 looks left, then right before it rolls its 5 1/2-foot-tall body down the hallways of Childrens Hospital Los Angeles.

Its goggle-like eyes see all: signs on walls and children held by parents, the nurses who smile at it and the physicians who give it a nod hello.

The RP-7 is a robot, a cross between WALL-E and R2-D2, only taller and with a speciality in medicine. It also wears a familiar face: that of Dr. Jeffrey Upperman, director of the Childrens Hospital trauma unit.

From his private office several floors above the emergency department, Upperman uses his laptop to control RP-7. Using the two-way camera,



Dr. Jeffrey Upperman's face appears on the screen of the RP-7 robot when it is in use at Childrens Hospital Los Angeles. (Evan Yee/Staff Photographer)

Upperman, CHLA-LEAMS

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ng Center



Upperman/CHLA-LAEMS



Web Resources

- <http://www.childrensnational.org/EMSC/>
- <http://disaster.nlm.nih.gov/>
- <http://www.aap.org/disasters/index.cfm>
- www.chladisastercenter.org



Acknowledgements

- Los Angeles Emergency Services Agency
- US Department of Health & Human Services
- USC Information Sciences Institute
- Childrens Hospital Los Angeles

Upperman/CHLA-LAEMS

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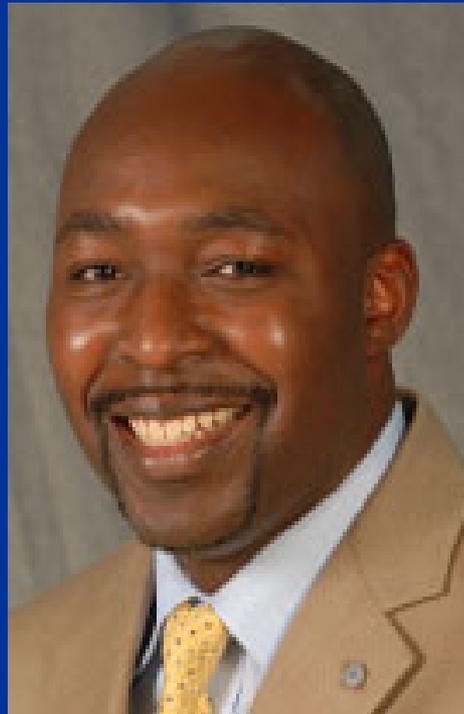


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**MAJ MC USAR Daniel B. Fagbuyi,
MD, FAAP**

H1N1 Pandemic – Lessons Learned



H1N1: Lessons Learned

State of All Hazards Preparedness for Children: Partnerships & Models
for Merging Emergency Department & Disaster Preparedness Efforts
Nationwide

March 24, 2010

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of Medicine, Children's National Medical Center

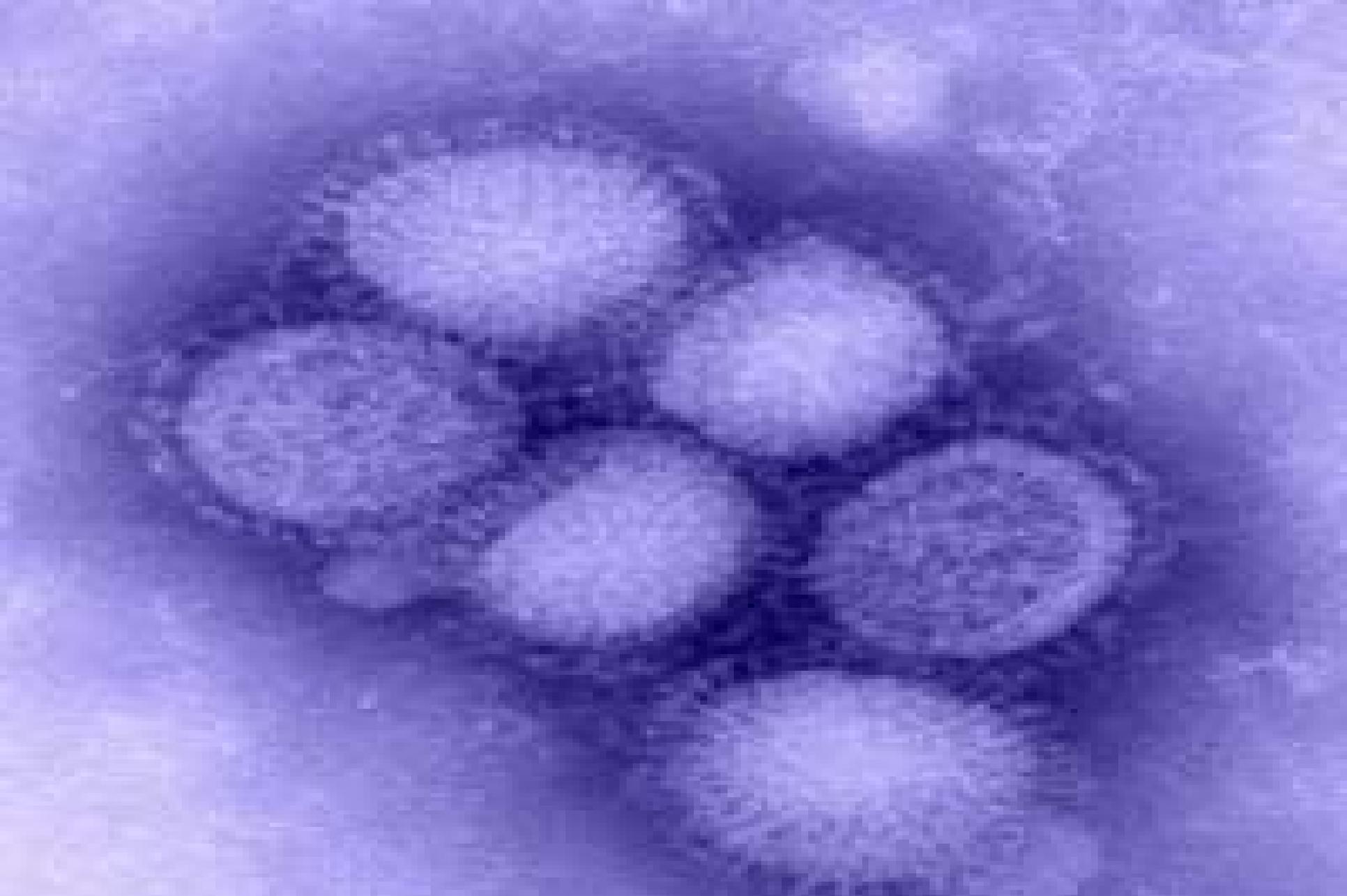


Objectives

- H1N1 outbreak (national impact)
- Discuss the pediatric impact in the Nation's Capital from frontlines at Children's National
- Enumerate what we “learned” from the 1st and 2nd wave of the pandemic
- Provide possible solutions to address noted gaps

Objectives

- What can state administrators, emergency managers, healthcare workers, first responders and others do?
- Discuss the next steps/future directions



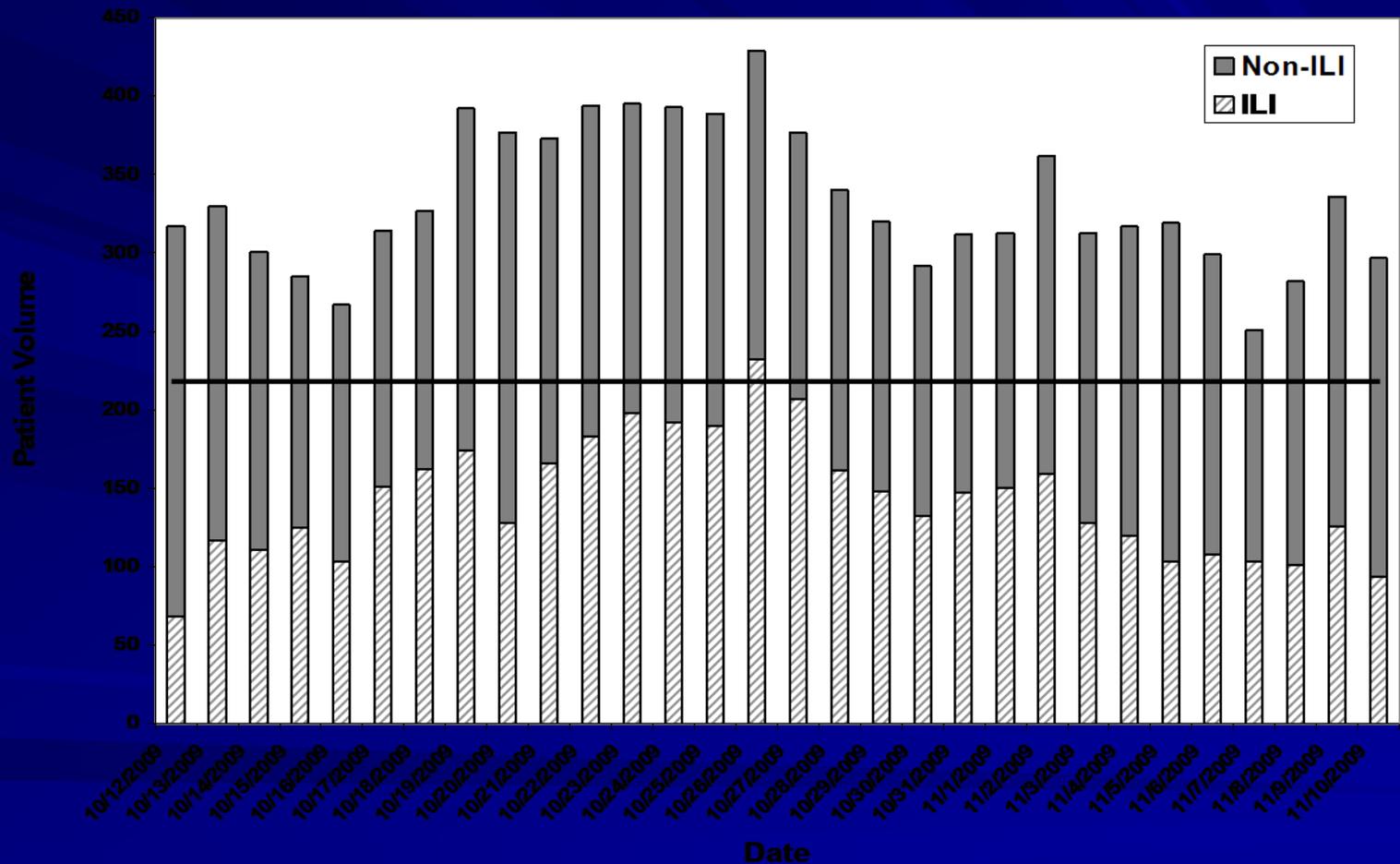
Pandemic (H1N1) 2009 Influenza Virus

2009 H1N1 Outbreak

- Occurred very late in the season
- Remarkable heterogeneity across US
- Affected young people disproportionately
- Caused widespread illness; some severe or fatal
- Socially disruptive, especially for schools
- Tens of thousands of health workers and others responded worldwide



H1N1 Impact on Children's National Emergency Department Patient Volume



Daily Influenza-like illness (ILI) and Emergency Department (ED) volume Fall'09 H1N1. Solid line represents ED baseline volume.

Lessons Learned

- Closing schools did not stop the spread of H1N1 and had significant downsides
- Confusion over who had the authority to close/open schools
- Cohorting patients in EDs was helpful in rapid assessment/triaging and infection control

Lessons Learned

- Stockpiling antivirals and pandemic planning was prudent
- Pre-printed antiviral prescriptions were helpful and saved time
- Pre-scripted medical screening questions and treatment algorithms were useful



H1N1 Influenza Testing and Treatment Algorithm for Clinicians 9/14/2009

Febrile Respiratory Illness
 Fever > 100 degrees (37.8C) **AND** Respiratory symptoms
 (Cough – Sore Throat – Rhinorrhea – Nasal Congestion)

YES

NO

Infection Control

- Place surgical mask on patient and family and maintain masked status in waiting areas
- Designate separate waiting areas when possible
- Standard, Contact and Droplet Precautions for staff providing patient care¹
- Private room with closed door if possible **OR** curtained-room with mask remaining on patient and family

- No influenza testing recommended.
- Additional evaluation/followup as clinically indicated.

Does Patient Require Hospitalization?

YES

NO

Hospitalized Patient

- Maintain Standard, Contact and Droplet Precautions¹
- Obtain NP Aspirate and send for Respiratory Viral PCR
- Begin empiric antiviral therapy (even if >48 hrs symptoms):
Oseltamivir (Tamiflu) OR Zanamivir (Relenza)
 - When Seasonal Flu co-circulating, use Zanamivir alone or combination Oseltamivir + Rimantidine OR Amantidine
 - See separate dosing guidelines for antiviral treatment
- Clinical judgment for possible additional antibacterial therapy

Non-Hospitalized Patient

- Testing for influenza/H1N1 **NOT** recommended
- Consider additional evaluation for other respiratory conditions and co-infections, If warranted

Antiviral Treatment?

HIGH RISK²

NOT HIGH RISK

Symptoms
<48 hours:
TREAT

Symptoms
>48 hours:
CONSIDER

NO TREATMENT³

¹Negative pressure room, fit-tested N-95 mask required for aerosol generating procedures: e.g. Bronchoscopy, **open** airway suctioning, cardiopulmonary resuscitation, intubation.
 • N-95 NOT required for: NP swab or aspirate collection, in-line (closed) airway suctioning, nebulized medication administration

²Persons at **HIGH RISK of complications:**
<http://www.cdc.gov/h1n1flu/recommendations.htm>:
 < 2 yrs ; >65 years of age; <19 yrs of age on long term aspirin therapy (Reye syndrome); pregnant women; chronic underlying pulmonary (including asthma), cardiovascular, hepatic, hematologic, neurologic, neuromuscular, or metabolic disorders; residents of chronic care facilities; immunosuppression (meds or HIV)
³Healthy persons with suspected H1N1 Influenza presenting with uncomplicated febrile respiratory illness typically do not require treatment..

Lessons Learned

- CDC reports lagged front-line situational awareness
- Daily conference calls with local DOH and healthcare coalitions were very useful
- Public health system was limited in its ability to execute its mission

Lessons Learned

- Stockpiled antivirals did not reach the community pharmacies in timely manner
- WHO pandemic alert caused confusion as it did not reflect severity
- Communication with the media, public, and health care workers was difficult; messages kept changing
 - The **“dynamic was one of change and adaptability”**

Outstanding Challenges

- Complex message on vaccination
 - Seasonal and H1N1 vaccines
 - Different recommendations for different ages
 - LAIV versus injected
- Distrust of vaccines
 - Historical references and Media disinformation
- Vaccine payment issues
 - Low Pediatric vs. Adult provider reimbursement

Pragmatic Solutions: Surge

- States need Federal guidance on altered standards of care
- All EDs (adult and pediatric) need to be prepared to care for children
- Community organizations, schools, childcare facilities should be able to care for and plan for emergencies involving children, especially those with chronic diseases and special needs

Pragmatic Solutions: Communications

- Public health, hospitals and private health partners need to collaborate and communicate with one another
- Coordination across all levels of government along with stakeholder input should be the standard
- Pediatric experts should be included on public health frameworks and communications

Pragmatic Solutions: Education

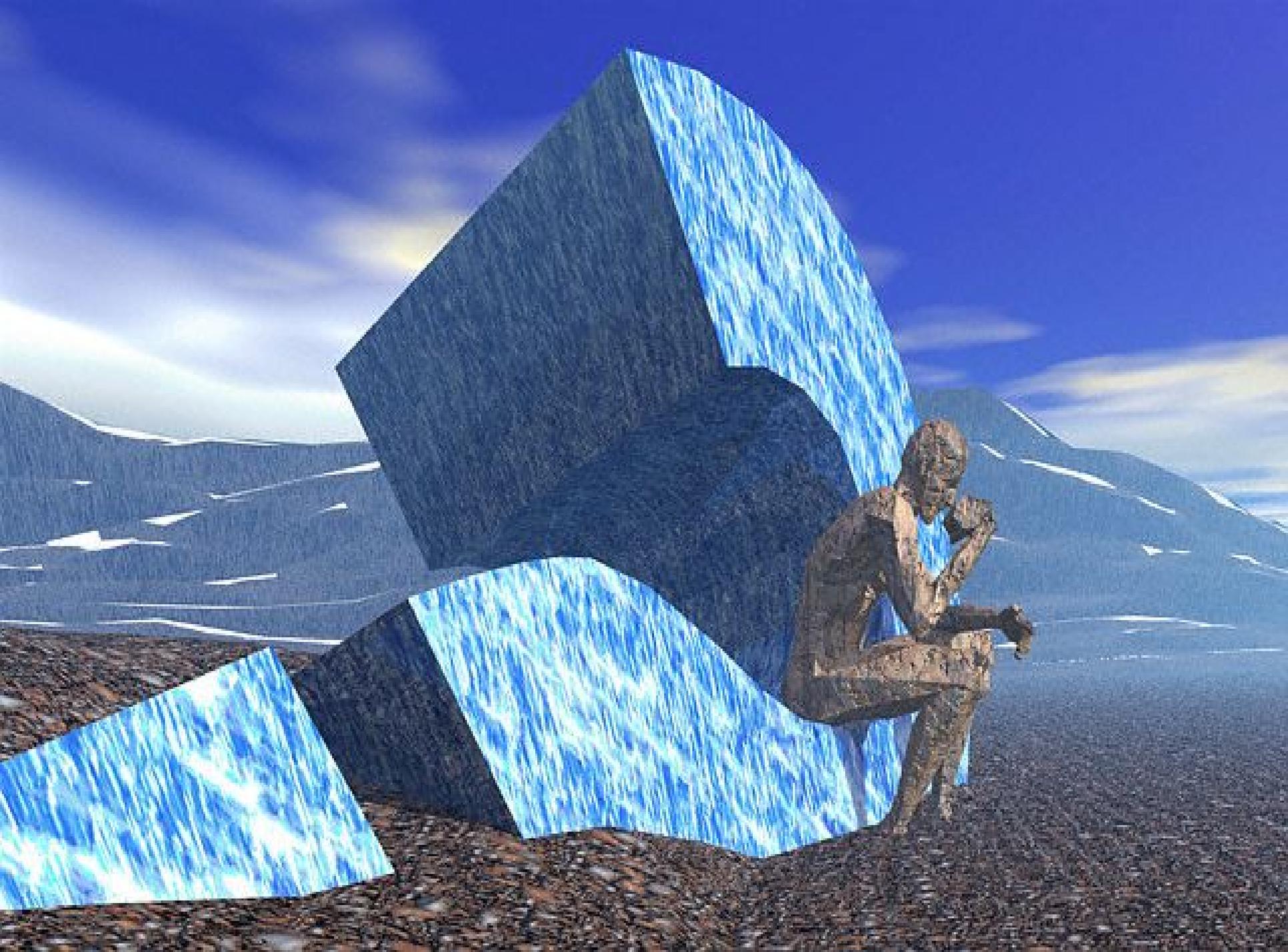
- Pediatric-focused educational messages should target caregivers and communities
- 1st responders and healthcare providers should be educated on unique vulnerabilities of children and the transportation issues that may arise; family-centered care for special needs children
- Social media is a unique tool, but message has to be consistent. Who is the messenger?

Pragmatic Solutions: General

- Build community resilience by being involved in the community—can you relate?
- Offer psychological first aid and beyond for children and families involved in disasters
- Scarce resources—how do we prioritize them; what are the ethical considerations?

Next Steps

- Improve real time surveillance/response
 - Statewide tracking of available beds (HAvbed)
 - Situational awareness
 - Rapid deployment of medical countermeasures (MCMs) and frameworks of operations
 - Ensure the SNS has appropriate pediatric MCMs for rapid deployment
- Consult and enlist pediatric partners at all levels of preparedness and response!



Sharon E. Mace, MD, FAAP FACEP

Key Stakeholders: Partners in Planning



Key Stakeholders: Partners in Planning

Sharon E. Mace, MD, FACEP, FAAP

American College of Emergency Physicians (ACEP)

Department of Emergency Medicine, Cleveland Clinic Foundation

Disaster Medicine/Emergency Medical Systems (EMS) are:

Key Components of Emergency Medicine (EM) Training and Practice

Emergency Physicians (EPs) are:

Directors of Emergency Medical Services

Emergency Medicine (EM)

- EM Postgraduate training in Disaster Medicine
- Fellowships in Disaster Medicine
- Fellowships in Emergency Medical Services
- ASPR Policy Fellows
 - Health and Human Services Assistant Secretary for Preparedness and Response (ASPR)
- Blast injury training course: CDC Grant
 - Component: special patient populations including pediatrics

EM: Disaster Education/Training

- Pediatric Disaster Life Support
 - PDLS Course, developed in 1995 by Dr. Richard Aghababian (ED Director)
 - Revised, ongoing courses
 - First course dedicated solely to pediatric patients in a disaster
 - Developed from Emergency Medical Services for Children (EMSC) grant

EM: Disaster Education/Training/Policies

- Textbooks of Disaster Medicine: the latest of many
 - Koenig and Schultz's Disaster Medicine: Comprehensive Principles and Practices
- Peer reviewed journals on Disaster Medicine
 - Prehospital and Disaster Medicine
 - American Journal of Disaster Medicine
 - Annals of Emergency Medicine, Academic Emergency Medicine
 - Sections devoted to Disaster Medicine
- Other textbooks, journals, courses on Disaster Medicine
- ACEP Disaster Medicine Committee and Section
- ACEP Emergency Medical Services Committee and Section

Pediatric Patients in a Disaster

- Part of the all hazard comprehensive approach to Disaster Management
- Four phases
 - Mitigation
 - Preparedness
 - Response
 - Recovery
- Children, infants and their families are a component of an overall system of Disaster Management

Children/Infants: Disasters

- 80% of children are seen in general (non-pediatric) EDs
- In a disaster, children/caregivers go to the closest ED or their “usual” ED for treatment
- Medical resources are overwhelmed
- Preservation of pediatric tertiary care infrastructure for sickest, most injured and youngest (neonates, infants) is critical

Pediatric Surge Capacity

- Antegrade and retrograde distribution of pediatric patients and health care staff
- Goal: preserve pediatric tertiary care capacity
- Reverse triage of stable pediatric patients to other hospitals with adapted or modified units and staff can decompress tertiary facilities

Surge Capacity in Disasters

- Surge capacity needs must be addressed for all types of hospitals, both pediatric and general, to allow non-pediatric facilities to adapt surge capacity for pediatric patients

Credentialing, Liability, Reimbursement

- Mechanism for credentialing
- Liability: Good Samaritan law, waiver (eg. public health or military)
- Immediate, reciprocal, internet-based, cross-credentialing of health care personnel to treat pediatric patients
- Allow pediatric practitioners to practice in general hospitals and vice versa
- Agreements for reimbursement for medical care in a disaster

Improving Pediatric Disaster Care

- Expand pediatric training for pre-hospital providers, other health care professionals
- Expand regional caches of pediatric equipment/supplies to expedite timely availability
- Include pediatric patients in disaster drills
- Few disasters are only pediatric
- Drills should include all ages including families and special healthcare needs (SCHN) individuals in an all-inclusive disaster plan

Improving Pediatric Disaster Care

- Uniform mechanism for secure integrated nationwide tracking and reunification of unaccompanied minors using biometrics
- Allow tracking across jurisdictional boundaries
- Credentialing of shelter staff
- Limited access to data on injured or sheltered children
- Preclude access to anyone without a specific need to know

Improving Pediatric Disaster Care

- Casualty transport systems
- Special health care needs individuals (SHCN)
- Psychosocial issues
- Recovery needs: evacuation centers/sheltering
- Schools: impacted, resources
- Training, prevention
- Public education
- Government/regulatory issues

Summary:

Pediatric Disaster Care

- Integrate the care of children and infants and their families into an all hazard, comprehensive emergency management approach to disasters
- Address surge capacity
- Reverse triage: antegrade/retrograde distribution of patients to off-load the overwhelmed system to preserve tertiary care facilities

Summary:

Pediatric Disaster Care

- Provision for tracking/reunification
- Expand pediatric training
- Expand pediatric equipment/supplies
- Include pediatric patients, families, SHCN individuals in disaster drills
- All-inclusive comprehensive disaster plan
- Mechanisms for cross-credentialing
- Liability/malpractice: Good Samaritan law, waiver
- Reimbursement for disaster medical care

Lori A. Upton, RN, BSN, MS, CEM

Key Stakeholders: Partners in Planning



PEDIATRICS AND EMERGENCY PREPAREDNESS

They are not just little adults

Lori A. Upton, RN, BSN, MS, CEN

Emergency Nurses Association

Assistant Director Emergency Management

Texas Children's Hospital

PREPAREDNESS

- Population
 - 26% population
 - 20 million under age 6
- Assumptions
 - Parents/caregivers
- Current planning initiatives
 - Adult focused

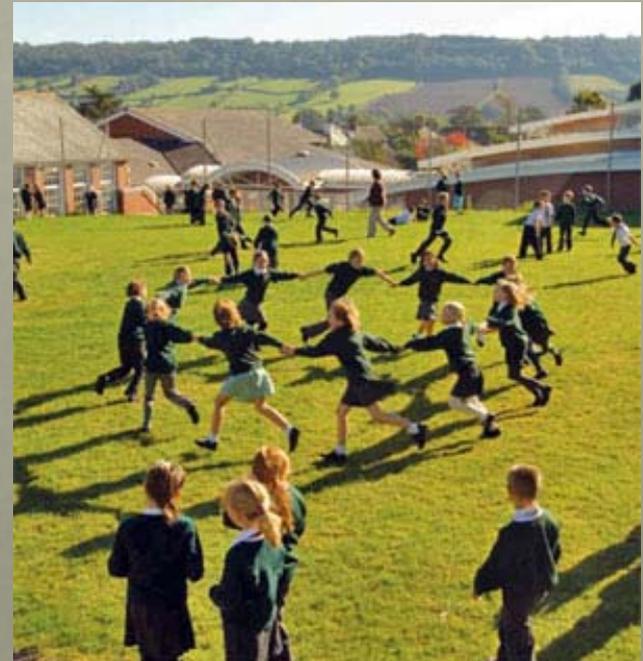


HISTORY

- 1995 – Oklahoma City Bombing
 - 19 dead
- 1997-2006 – School Shootings
 - 8 incidents with >5 dead/wounded
- 2001 – World Trade Center
 - 1.2 Million in vicinity
- 2004 – Breslan School Attack
 - 156 dead

RISK ASSESSMENTS

- Secondary victims vs. intentional targets
- Schools and day care facilities
- Churches and other religious institutions
- Child focused events
 - Sports
 - Camp
 - Parks
- Homes



SURGE CAPACITY

- Cribs/beds/space identified
 - How many are available beyond the average day to day census?
- A safe area designated for children arriving at the hospital who do not need treatment?
- Are the appropriate provisions in place for staffing the safe area with a qualified staff member?
- Access to pediatric equipment and supplies?
 - Stockpile or an up to date MOU with an outside facility/vendor?

SECURITY

- Are there systems in place that attempt to keep families together?
- Is there a system in place to track pediatric patients:
 - Accompanied but separated from parents or guardians?
 - Unaccompanied by a parent or guardian?
- Is there a system in place to reunite children with their families?

STAFFING

- Is there a specific plan for calling in extra staff skilled in pediatric care, in the event of a mass casualty event?
- Does the staffing plan include mental health professionals specializing in the needs of pediatrics?
 - Child Life
 - Psychologists
 - Socials Workers



RESPONSE

- Decontamination
- Special Needs
- Shelter Management
- Transport Requirements



DECONTAMINATION

- Does your decontamination system provide low pressure/high volume warm water? ($>98^{\circ}\text{F}$)
- Does your plan include a way to safely carry infants and children through the showers?
- Are supplies available for warming pediatrics?



DECONTAMINATION CONSIDERATIONS

- Fear of PPE
- Cognitive Abilities
- Age-appropriate Responses
- Staffing Resources



TRANSPORTATION

- Appropriate equipment and supplies
- Appropriate vehicles
- Trained personnel
- Receiving locations



SHELTER MANAGEMENT CONSIDERATIONS

- Appropriate Bedding
- Family Unit
- Nutrition
- Privacy Issues
- Security Issues
- Diversional Activities
- Child Life Specialists
- Pediatric Medical Team Support



RECOVERY

- Reunification
- Mental Health Challenges
- Return to Normalcy



REUNIFICATION

- Tracking parents with children
- Transporting and treating together
- Central database with access permissions



MENTAL HEALTH CHALLENGES

Young children's reactions are strongly influenced by parent reactions to the event.



RETURN TO NORMALCY

- Housing
- Family and friends
- Pets
- School
- Activities
- Regular routines



SPECIAL NEEDS CHILDREN

- Pulmonary

Vent-dependant, asthma, cystic fibrosis

- Cardiac

Congenital defects

- Neurological

Autism, CP, MD, MR, seizures

- Gastrointestinal

Feeding disorders, functional disease

- Immuno-compromised

HIV, cancer, transplant

- Endocrine

Diabetes

- Behavioral

Eating disorders, ADHD

CURRENT LOCAL INITIATIVES

- Pediatric Disaster Coalition
 - Transport issues
 - Pediatric medical response teams
- Regional Pediatric Disaster Plans
 - Surge capacity
 - Decontamination recommendations
- Inclusion of Pediatric/Neonatal Transport Services
- Pharmaceutical caches with pediatric medications
- Inclusion in ENPC rewrite

REMAINING CHALLENGES

- Appropriate pediatric population disaster care
- Identification of pediatric population “special needs”
- Development of pediatric-specific shelter planning for families and technologically dependant
- Pediatric transportation assets



REMAINING CHALLENGES

- Pediatric Surge Capacity
- Equipment
- Pharmaceuticals
- Nutritional Support
- Decontamination Facilities
- Specialty Trained Response Teams
- Mental Health Teams and Family Re-Unification



Sarita A. Chung, MD, FAAP

*Key Stakeholders: Partners in Planning
American Academy of Pediatrics: Disaster
Preparedness Initiatives*



American Academy of Pediatrics

Disaster Preparedness Initiatives

Sarita Chung, MD, FAAP

Member, American Academy of Pediatrics Disaster
Preparedness Advisory Council

Center for Biopreparedness, Division of Emergency Medicine
Children's Hospital Boston, Harvard Medical School

March 24, 2010

Children, Pediatricians, and Disasters



Disaster Preparedness Advisory Council

(Initiated July 2007)



Members:

Steven Krug, MD, FAAP, Chair

Sarita Chung, MD, FAAP

Daniel Fagbuyi, MD, FAAP

Margaret Fisher, MD, FAAP

Scott Needle, MD, FAAP

David Schonfeld, MD, FAAP

Liaisons:

Terry Adirim, MD, MPH, FAAP

Dept of Homeland Security

Pamela Diaz, MD (*CDC*)

Lisa Mathis, MD, FAAP (*FDA*)

David Siegel, MD, FAAP (*NICHD*)

Kevin Yeskey, MD, (*HHS ASPR*)

DPAC Goals

1. Address disaster planning, response, rescue, and recovery.
2. Reflect an “all-hazards” approach (i.e., prepare for all potential disasters).
3. Build systems at the medical home, community, state, regional, and national levels through partnerships with public health and other systems.
4. Integrate its efforts with existing internal and external approaches.

DPAC

Activities/Accomplishments

- AAP Strategic Plan
- Advocacy and Policy Initiatives
- Appointments/Representation at Meetings
- Comments on Federal Proposals including the National Response Framework, National Recovery Framework
- Educational Presentations
- Pediatric Countermeasures Agenda
- Practice-based Resources
- Publications
- Testimony

DPAC Activities: H1N1



- Quickly recognized as a pediatric pandemic
- Worked closely with CDC
 - To examine evidence and recommend to change guidelines
 - Enhance communications
 - Plans for primary care offices



American Academy
of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®

2009-2010 Influenza Season Triage Algorithm for Children (< 18 years) With Influenza-Like Illness

This algorithm was developed for use only by physicians and those under their direct supervision, not for use by general public, to help in discussions and providing advice to parents or other caregivers of all children regarding seeking medical care for an influenza-like illness. The algorithm can be used regardless of whether or not the child has been vaccinated for influenza. Caregivers of children who may have potentially life-threatening signs and symptoms, such as unresponsiveness, or respiratory distress and/or cyanosis (blue-colored skin), should be instructed to dial 911.

If child < 2 years old are **all** of the following present?

1. Fever or feels feverish (if no thermometer available)*
2. Irritability or cough or vomiting/unable to keep fluids down

If child ≥ 2 years old are **all** of the following present?

1. Fever or feverishness*
2. Cough or sore throat

*If antipyretics are taken this may inhibit a patient's ability to mount a fever. If antipyretics have been taken, the patient can be reassessed 4 to 6 hours after acetaminophen or 6 to 8 hours after ibuprofen.

NO

Although some children with influenza may not exhibit the usual influenza symptoms including fever, this child's symptoms suggest that influenza is less likely. They do not meet criteria for this algorithm. The child should be assessed for alternative diagnosis.

YES

Is the child younger than 12 weeks old?

YES

Recommend immediate medical evaluation for child, preferably with child's medical home/primary care provider, or refer for emergency medical care or 911 if any signs or symptoms of life-threatening illness.

NO

Are **any** of the following signs or symptoms present?†

Age 12 weeks to <5 years

- Fast breathing* or difficulty breathing or retractions present
- Dehydration (no urine output in 8 hours, decreased tears or no tears when child is crying, or not drinking enough fluids)
- Severe or persistent vomiting/unable to keep fluids down
- Lethargy (excessive sleepiness, significant decrease in activity level, and/or diminished mental status)
- Irritability (cranky, restless, does not want to be held or wants to be held all the time)
- Flu-like symptoms improved but then returned or worsened within one to a few days
- Pain in chest or abdomen (for children who can reliably report)

Age 5 years

- Fast breathing* or difficulty breathing
- Dizziness or lightheadedness
- Severe or persistent vomiting/unable to keep fluids down
- Flu-like symptoms improved but then returned or worsened within one to a few days
- Pain in the chest or abdomen

YES

Recommend immediate medical evaluation for child, preferably with child's medical home/primary care provider.

NO

Is the child at least 12 weeks old but less than 2 years old?

YES

This child falls into a group that may be at elevated risk for complications from influenza. Recommend that they be evaluated for possible treatment. Recommend that the child's caregiver contact the child's medical home/primary care provider that day.

NO

Does the ill child have **any** of the following conditions?‡

1. Neurological disorders such as:
 - Epilepsy
 - Cerebral palsy, especially when accompanied by neurodevelopmental disabilities (e.g., moderate to profound intellectual disability [mental retardation] or developmental delay)
 - Brain or spinal cord injuries
2. Chronic respiratory diseases such as:
 - Conditions associated with impaired pulmonary function and/or difficulty handling secretions
 - Technology dependent children (e.g., those requiring oxygen, tracheostomy, or a ventilator)
 - Asthma
3. Moderate to profound intellectual disability (mental retardation) or developmental delay, especially when associated with specific conditions (see #1, #2 above)
4. Deficiencies in immune function or conditions that require medications or treatments (e.g., certain cancer treatments, HIV infection) that result in significant immune deficiencies
5. Cardiovascular disease including congenital heart disease

YES

This child falls into a group that may be at elevated risk for complications from influenza. Recommend that they be evaluated for possible treatment. Recommend that the child's caregiver contact the child's medical home/primary care provider that day.

DPAC Activities: Haiti

- Working with NACHRI to ensure coordinated pediatric response
- Working with the Haitian Pediatric Society to assist in long term recovery
- Volunteer list of pediatricians





Children & Disasters



Disaster preparedness to meet children's needs

Resources for:

[Pediatricians](#)

[Families](#)

[Child Care](#)

[Schools](#)

[Advocacy/Policy](#)

[Help/Search](#)

Children must be cared for properly in the event of a disaster. Federal, state, and local disaster plans should include specific protocols for management of pediatric casualties and should include pediatricians in planning at every organizational level. Pediatric-specific capabilities must be present at all points of operation. Health care and

Disaster Preparedness and Pediatrics

The American Academy of Pediatrics offers materials for pediatricians who wish to become better prepared for a disaster or are interested in getting involved in pediatric disaster medicine. The online planning tool [Disaster Preparedness for Pediatric Practices](#) now contains a template Office Plan (Word document) that can be modified into an office preparedness plan.

Advocating Effectively for Children

Pediatricians can play a key role in promoting readiness for children and families through education and advocacy. The AAP fact sheet, [The Youngest Victims: Disaster Preparedness to Meet Children's Needs](#), highlights how children are different from adults and frames this information for those who may not have pediatric knowledge or training. A new joint [policy](#) outlines what is necessary to ensure that hospital emergency departments stand ready to care for children.

What's New

Haiti Earthquake
Pediatric Response/Recovery
Medical Screening of Orphans

Education/Training
PowerPoint Presentations
PEDs Course Materials
Events Calendar

Featured

Helping Children Cope
Mental Health Resources

H1N1 Pandemic Resources
For Health Professionals

National Commission
Interim Report to
President/Congress

Continuity of Operations

Guidelines for Care of Children
in the Emergency Department

The Medical Home
All Children...All The Time

Resource:
AAP Website

<http://www.aap.org/disasters/index.cfm>

How to Get Involved

- **Options for pediatric involvement**
 - Take part in community and hospital drills/exercises
 - Design a pediatric office disaster plan
 - Develop disaster plans for child care programs, schools, and other community-based groups
 - Help families develop their own plans
 - Participate in or offer guidance to pediatric response teams, medical volunteer programs, Medical Resource Corps, etc.
- **Options for Chapter involvement**
 - Connect with the AAP Chapter Contact or become one!

How to Get Involved

- AAP **Contact Network** – 600+ pediatricians and colleagues who are “interested and involved” or “pediatric preparedness experts”
- Email DisasterReady@aap.org
 - Be added to electronic mailing list
 - Receive AAP updates, info on resources and opportunities
 - Quarterly AAP progress report

***Questions and
Answers:
All Speakers***